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*FlyBy Math*TM Alignment
Kansas Curricular Standards for Mathematics
Jan 31, 2004

Standard 1: Number and Computation

Number and Computation – The student uses numerical and computational concepts and procedures in a variety of situations.

Benchmark 3: Estimation – The student uses computational estimation with rational numbers and the irrational number pi in a variety of situations.

Sixth Grade Knowledge Base Indicators The student…	*FlyBy Math*TM **Activities**
4. determines the appropriateness of an estimation strategy used and whether the estimate is greater than (overestimate) or less than (underestimate) the exact answer and its potential impact on the result (2.4.K1a)	--Predict outcomes and explain results of mathematical models and experiments.

Sixth Grade Application Indicators The student…	*FlyBy Math*TM **Activities**
2. estimates to check whether or not the result of a real-world problem using rational numbers is reasonable and makes predictions based on the information) (2.4.A1a)	--Predict outcomes and explain results of mathematical models and experiments.
4. determines if a real-world problem calls for an exact or approximate answer and performs the appropriate computation using various computational methods including mental math, paper and pencil, concrete objects, or appropriate technology (2.4.A1a)	--Predict outcomes and explain results of mathematical models and experiments.

Standard 2: Algebra

Algebra – The student uses algebraic concepts and procedures in a variety of situations.

Benchmark 1: Patterns – The student recognizes, describes, extends, develops, and explains the general rule of a pattern in a variety of situations.

Sixth Grade Knowledge Base Indicators The student…	*FlyBy Math*TM **Activities**
1. identifies, states, and continues a pattern presented in various formats including numeric (list or table), visual (picture, table, or graph), verbal (oral description), kinesthetic (action), and written using these attributes include: d. measurements (2.4.K1a) e. things related to daily life (2.4.K1a)	--Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.

Sixth Grade Application Indicators The student… 1. recognizes the same general pattern presented in different representations [numeric (list or table), visual (picture, table, or graph), and written)] (2.4.A1a,k)	*FlyBy Math*^{TM} **Activities** --Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.

Benchmark 3: Functions – The student recognizes, describes, and analyzes linear relationships in a variety of situations.

Sixth Grade Knowledge Base Indicators The student… 4. uses a given function table (input/output machine, T-table) to identify, plot, and label the ordered pairs using the four quadrants of a coordinate plane (2.4.K1a,f).	*FlyBy Math*^{TM} **Activities** --Represent distance, speed, and time relationships for constant speed cases using linear equations and a Cartesian coordinate system. --Plot points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system to describe the motion of two airplanes.
Sixth Grade Application Indicators The student… 1. represents a variety of mathematical relationships using written and oral descriptions of the rule, tables, graphs, and when possible, symbolic notation (2.4.A1f,k)	*FlyBy Math*^{TM} **Activities** --Represent distance, speed, and time relationships for constant speed cases using linear equations and a Cartesian coordinate system.

Benchmark 4: Models – The student generates and uses mathematical models to represent and justify mathematical relationships in a variety of situations.

Sixth Grade Knowledge Base Indicators The student… 1. knows, explains, and uses mathematical models to represent mathematical concepts, procedures, and relationships. Mathematical models include: a. process models (concrete objects, pictures, diagrams, number lines, hundred charts, measurement tools, multiplication arrays, division sets, or coordinate planes/grids) to model computational procedures and mathematical relationships and to solve equations; f. function tables (input/output machines, T-tables) to model numerical and algebraic relationships; j. frequency tables, bar graphs, line graphs, circle graphs, Venn diagrams, line plots, charts, tables, single stem-and-leaf plots, and scatter plots to organize and display data	*FlyBy Math*^{TM} **Activities** --Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
2. uses one or more mathematical models to show the relationship between two or more things.	--Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.

Sixth Grade Application Indicators The student…	*FlyBy Math*[TM] **Activities**

1. recognizes that various mathematical models can be used to represent the same problem situation. Mathematical models include:
 	
   a. process models (concrete objects, pictures, diagrams, number lines, hundred charts, measurement tools, multiplication arrays, division sets, or coordinate planes/grids) to model computational procedures and mathematical relationships and to solve equations;
   f. function tables (input/output machines, T-tables) to model numerical and algebraic relationships;
   k. graphs using concrete objects, frequency tables, bar graphs, line graphs, circle graphs, Venn diagrams, line plots, charts, tables, and single stem-and-leaf plots to organize and display data, explain, and interpret data
	--Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.
	
	--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.

2. selects a mathematical model and justifies why some mathematical models are more useful than other mathematical models in certain situations.	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes. --Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.

Standard 3: Geometry

Geometry – The student uses geometric concepts and procedures in a variety of situations.

Benchmark 2: Measurement and Estimation – The student estimates, measures, and uses measurement formulas in a variety of situations.

Sixth Grade Knowledge Base Indicators The student…	*FlyBy Math*[TM] **Activities**
1. determines and uses whole number approximations (estimations) for length, width, weight, volume, temperature, time, perimeter, and area using standard and nonstandard units of measure (2.4.K1a)	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.
2. selects, explains the selection of, and uses measurement tools, units of measure, and degree of accuracy appropriate for a given situation to find accurate rational number representations for length, weight, volume, temperature, time, perimeter, area and angle measurements. (2.4.K1a)	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.

Sixth Grade Application Indicators The student… 3. estimates to check whether or not measurements or calculations for length, width, weight, volume, temperature, time, perimeter, and area in real-world problems are reasonable and adjusts original measurement or estimation based on additional information (a frame of reference) (2.4.A1a)	FlyBy Math™ Activities --Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation. --Predict outcomes and explain results of mathematical models and experiments.

Benchmark 4: Geometry From An Algebraic Perspective – The student relates geometric concepts to a number line a coordinate plane in a variety of situations.

Sixth Grade Knowledge Base Indicators The student… 2. organizes integer data using a T-table and plots the ordered pairs in all four quadrants of a coordinate plane (coordinate grid) (2.4.K1a)	FlyBy Math™ Activities --Plot points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system to describe the motion of two airplanes.

Standard 4: Data

Data – The student uses concepts and procedures of data analysis in a variety of situations.

Benchmark 2: Statistics – The student collects, organizes, displays, and explains numerical (rational numbers) and non-numerical data sets in a variety of situations with a special emphasis on measures of central tendency.

Sixth Grade Knowledge Base Indicators The student… 1. organizes, displays, and reads numerical (quantitative) and non-numerical (qualitative) data in a clear, organized, and accurate manner including a title, labels, categories, and whole number and decimal intervals using these **data displays** (2.4.K1j): c. bar and line graphs, e. charts and tables	FlyBy Math™ Activities --Represent distance, rate, and time data using tables, line plots, bar graphs, and line graphs.
Sixth Grade Application Indicators The student… 2. explains advantages and disadvantages of various data displays for a given data set (2.4.A1k)	FlyBy Math™ Activities --Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.